MAFEurope®

Rolf Muri AG
Automations-Technik

DATAMAF15 DATA ACQUISITION SYSTEM
8 ANALOG INPUT SYNCHRONOUS HIGH RESOLUTION AND FREQ. SAMPLING
8 DIGITAL INPUTS - 4 RELAYS - CAN INPUT - TRANSMISSION: ETHERNET, USB
ACQUISITION NETWORK - PC SOFTWARE - EASY TO USE

- Complete system: software + hardware.
- Easy to use and troubleshoot (check-up function, log of modifications, reset to factory settings, firmware re-programming, configuration file save function).
- Compact.
- DATA2LOG data acquisition software utility for computer (parameter setting, visualization, data acquisition, troubleshooting), it is included without need to purchase a user's license (=cost saving).
- Calibration procedure with up 10 calibration points for high accuracy.
- Data acquisition net: several dataloggers can be connected to a single computer.
- SD card: included 8GB internal memory.
- Power supply: 10-30Vdc 2A max.
- Option: luggage for field transport and protection

INPUTS/OUTPUTS:
- 8 analog inputs: synchronous high resolution (23bit +1bit sign max.) and sampling frequency (100kHz max.).
- Type of signals (without any additional external hardware): ±100mV, +5V, ±5V, +10V, ±10V, 0-20mA, 4-20mA, potentiometers 100kΩ max, PT100/PT1000, Thermocouples J, NTC 10K@25°C ß 3435.
- CAN net acquisition (sample rate 50kHz max.).
- 8 digital inputs: triggers for synchronization and function activation.
- 4 relays outputs for application control.
- USB and Ethernet digital transmission.
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HOW CAN IT BE USED:
- Fast phenomena and unmanned acquisitions: acquired data is stored in internal memory.
- Streaming: measured data visualized and acquired on customer's computer.
- Excel files: acquired values can be selected and then saved on computer by means of Excel files that other customer's softwares can easily handle.

APPLICATIONS:
Automation, test rigs, geotechnical, structure control, research, university, aerospace, military, naval/offshore, industrial plants and machinery etc.

LÖSUNGEN MIT SYSTEM

GENERAL DESCRIPTION:

DATAMAF15 is an industrial data acquisition system that can be connected to several types of transducers and sensors. It includes: DATA2LOG software utility for computer, DATAMAF15 datalogger electronics and accessories, transportation case is an option.

Analog inputs are synchronous, they can accept several types of input signal without any additional hardware, they have high resolution and sampling rate. Acquired values can be saved in internal SD memory card and can be transmitted to customer's computer for streaming visualization. Several DATAMAF15 dataloggers can be connected to a single computer therefore expanding the number of input channels and CAN nets. DATA2LOG software utility is included: it saves acquired data in computer, shows data and sets working parameters. High reliability by means of hardware self test function, saving of configuration file, modifications log, reset function and reprogramming of firmware function. Communication protocol allows customers to interface DATAMAF15 to their own software. Option: transportation case.

OPERATIVE MODES:

- **Connected to computer:**
  DATAMAF15 can be connected to customer's computer by means of USB and Ethernet digital transmission.
  DATA2LOG software, installed in computer, allows to set working parameters, to show acquired values and to transfer data files from internal SD card and saving the values on computer by means of Excel files.
  Data can be shown on computer graph like an oscilloscope by means of streaming (sampling rate ≤1kHz) or by means of data files uploaded from SD card when acquisition is ended.
  It is possible to select up to 10 data files at the same time (even from different DATAMAF15 dataloggers) to be shown and saved on computer.
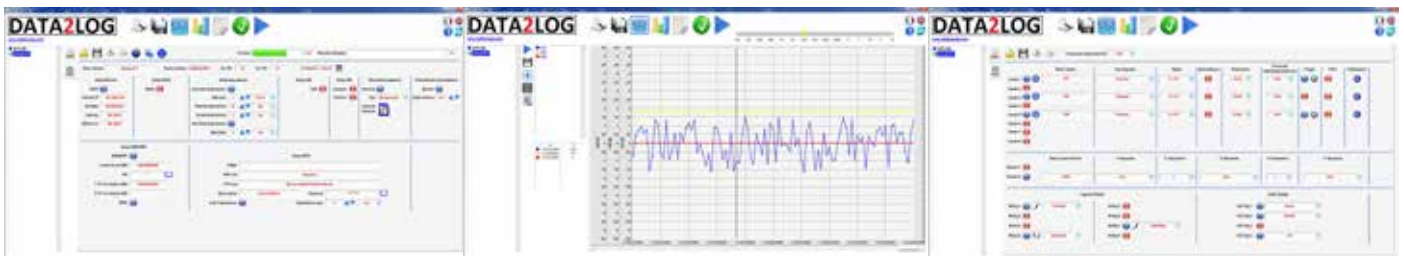- **Data acquisition net:**
  Several DATAMAF15 dataloggers can be connected to a single computer at the same time by means of Ethernet communication, therefore allowing more available analog input channels and CAN net acquisitions.
- **Unmanned data acquisitions:**
  DATAMAF15 can acquire values in internal SD card by setting the acquisition start/stop (sec till days), the frequency (sec till days) and a warm-up time to reduce transducers' thermal drift.

DATA2LOG SOFTWARE:

DATA2LOG software utility is included in the installation disk for being installed in customer's computer and it can set working parameters about: digital communication, inputs/outputs, calibration of connected transducers/sensors, visualization of logged data, memory setting, data file, acquisition programming (start/stop, sampling rate, duration etc.), troubleshooting (fallback to factory configuration, test function, firmware reprogramming, configuration files), handling of data file.

Minimum computer requirements: Windows 10 (64-bit), CPU 64 bit (x64) 1.9 GHz or better, RAM 2GB, HDD 256MB, display 1366x768 pixel (preferred FULL-HD 1920x1080), USB 2.0, Excel2016.

DATA FILE:

DATAMAF15 electronics, for every acquisition, saves acquired values in data files inside the internal SD memory card, DATA2LOG software shows these files on computer screen and saves them into Excel files on hard disk.

EASY TO USE:

DATAMAF15 has several troubleshooting functions:

- **Event log:** system modifications are saved.
- **Test function:** it allows to test the functionality of most of system hardware and software (input amplifier, A/D converter, CPU).
- **Reset function:** it allows to fallback to factory configuration and can be activated by means of DATA2LOG or hardware push button.
- **Firmware reprogramming:** it allows to reprogram firmware into DATAMAF15 microprocessor.
- **Configuration file:** it allows to save all settings (calibrations, work parameters etc.) into a file on computer, for subsequent uploading in order to save time (= cost saving).
- **Transportation case:** it is optionally available and allows an easy and safe field transportation.

DIGITAL INPUTS:

8pcs. digital inputs, push pull, activation 9-28Vdc, dynamics 10kHz max., can be used for acquisition synchronization and for function activation (start/stop logging, raise/lower resolution and sampling rate, transducers warm-up time etc.)

ANALOG INPUTS:

8pcs. analog synchronous analog inputs, high resolution (23bit max.+1 sign) and sampling rate (100kHz max.). Analog input channels can accept several types of connected transducer signals (no external additional hardware modules = cost saving). DATA2LOG software allows 2 virtual channels as a result of mathematical operation (sum, subtraction and multiplication) on physical channels. It is possible to set the sampling rate for each input channel in order to use less memory.

INPUT TYPE	SIGNAL RANGE	INPUT IMPEDANCE
Single ended/differential	0 a +100mV, ±100mV	100MΩ
Single ended/differential	0 a +5V, ±5V, 0 a +10V, ±10V	
Single ended	0-20mA, 4-20mA, 12±8mA	269Ω
Potentiometer	0 a 100kΩ	1MΩ
NTC 10k@25°C 3435	-25 a +110°C	
PT100, PT1000	0 a +850°C	
Thermocouple J	0 a +750°C	-

- **Linearity:** ±0,1%FS max. @+25°C, ±0,15%FS max. @ -25 a +55°C, calibration procedure with 10 points max, allows to reduce application and sensor errors (with thermocouples, PT100/PT1000, NTC there are higher errors).
- **Resolution:** A/D 23bit + 1bit polarity sign (resolution depends on application conditions, how power supply is fed to sensors/transducers and how much signal is fed relatively to input channel signal full scale).
- **Filters:** multipole, to reduce noise (low pass, pass band, high pass, band stop).
- **Power supply to connected transducers:** 12Vdc @60mA max.

System specification and functionality (resolution, accuracy, thermal stability etc.) depend on application conditions and calibration procedure up to 10 point max.

DIGITAL OUTPUTS:

4pcs. SPDT relays, NC/NO, 2A max, 30Vdc max, 60W max., for process control, they can be activated with hardware and software triggers.

DIGITAL TRANSMISSION:

- **USB 2.0**: for computer connection and data logging.
- **Ethernet:** switch with 2 connectors 10/100 MBPS: for computer connection and data logging. It allows connection of several DATAMAF15 to a single customer computer and to raise the number of available analog input channels and CAN nets. Ethernet connection allows to connect several DATAMA15 to a single computer therefore raising the CAN net acquisitions.
- **CAN:** 2 connectors, it allows to acquire values transmitted on CAN net. Baud Rate: 125 kbps, 250 kbps, 500 bps, 1Mbps. Internal 120Ω termination resistance can be activated by DATA2LOG, sample rate up to 50kHz max.

POWER SUPPLY:

- **Power supply generator:** included, with P1J connector for DATAMAF15, mains 90-265Vac 50/60Hz, feeds 12Vcc@3,34A max.
- **External power supply:** on estractable screw terminal connector, +10 to 30Vdc, 2A ma.
- **Socket adapters:** included, for USA, Europe, Asia, Africa.

INTERNAL SD MEMORY CARD:

DATAMAF15 includes an internal 8GB micro SD memory card where acquired values are stored and then Da2Log software transfers them to computer where data files are created.

MECHANICAL DIMENSIONS:

Datamaf15case: 268x120x47mm.
Mechanical fixation (on wall or box): by means of 4 adapters (MEC1) that can be applied into two grooves on the bottom side of the case.
Weight Datamaf15: 1,2kg.

ENVIRONMENT:

Work temperature: -25 to +55°C.
Humidity: 90% RH, without dew.
Environment protection Datamaf15: IP40 (excluded connectors).

CERTIFICATIONS AND TESTS:

CE: industrial type, accordingly to regulations EN61000-6-4, EN61000-6-2, CIPR 16-2-1 e CIPR 16-2-3, EN61000-4-4-, EN61000-4-2, EN61000.4.6, EN61000-4-3.
DATAMAF15 datalogger has been thermically tested in a climatic room.
RoHS.

QUALITY:

DATAMAF15 datalogger has been quality checked during production and each unit has been tested by a computerized test unit.

TRANSPORTATION CASE:

Transportation case (VAL1): optional, for field transportation and protection of the DATAMAF15 complete system (KITDATAMAF15). Black plastic case, dimensions 450x363x148mm, with internal shock absorbing material, with valve for pressure equalization during air transportation, padlocks can be applied.

INCLUDED MATERIAL (order codes between brackes):

DATAMAF15 data acquisition system (KITDATAMAF15): 1pcs.DATAMAF15 datalogger electronics (DATAMAF15), 1pcs. DATA2LOG installation disk (DISK1), 1pcs. Power supply generator, 12Vdc, mains 110-220Vac with cable and P1J connector (PWR1), 1pcs. Power supply cable, 1,6m with shucko connector, (CABPWR1), 4pcs. socket adapters (CON1), 1pcs. USB cable (CABUSB1), 1pcs. Ethernet 2m cable (CABETH1), 4pcs. Adapters for fixing (MEC1).
Case (VAL1): optional, to be purchiased separately.

Technical and commercial specifications can change without any notification..